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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/010,935	PRAGER ET AL.	
	Examiner	Art Unit	
	JASON E. MATTIS	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-34,36-47 and 62-75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-34,36-47 and 62-75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment filed 11/24/08. Claims 5, 35, and 48-61 have been canceled. New claims 64-75 have been added. Claims 1-4, 6-34, 36-47, and 62-75 are currently pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 6, 10, 11-13, 28-33, 36-38, 42, 64, and 70 rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. (U.S. Pat. 5802177) in view of Kakuma et al. (U.S. Pat. 5504742).

With respect to claim 1, Daniel et al. discloses a wireless communication system **(See the abstract of Daniel et al. for reference to a radio telecommunication system)**. Daniel et al. also discloses a first subscriber subsystem disposed at a subscriber location having a first data interface compatible with a first general purpose protocol and a first digital interface compatible with a protocol other than the first general purpose protocol **(See the abstract, column 3 line 48 to column 4 line 3, and Figure 1 of Daniel et al. for reference to ITS 13, which is a first**

subscriber subsystem located within a subscriber's premises, having a subscriber interface 16, which is compatible with a first general purpose protocol, and a serial interface 18, which is a first digital interface compatible with a different protocol). Daniel et al. further discloses a second subscriber subsystem disposed at a subscriber location having a second subscriber data interface compatible with a wireless protocol and a second digital interface coupled to the first digital interface to provide communication between the first subscriber data interface and the second subscriber data interface **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14, which is a second subscriber subsystem located on the outside of a subscriber's premises, having a radio transceiver 23, which is a second subscriber data interface compatible with a wireless CDMA communication protocol, and serial interface 21, which is a second digital interface coupled to serial interface 18 to provide communication between the ITS 13 and STRU 14)**. Daniel et al. also discloses that the first subsystem comprises an indoor unit subsystem and the second subsystem comprises an outdoor unit subsystem **(See the abstract and column 3 lines 48-52 of Daniel et al. for reference to the ITS 13 being an indoor unit and the STRU 14 being an outdoor unit)**. Daniel et al. does not specifically disclose that the first subscriber data interface provides a broadband interface compatible with a broadband protocol.

With respect to claim 32, Daniel et al. does not specifically disclose providing broadband interfaces.

With respect to claim 33, Daniel et al. discloses a method for providing wireless subscriber digital signal processing **(See the abstract of Daniel et al. for reference to a radio telecommunication method providing subscriber signal processing)**. Daniel et al. also discloses providing a first signal processing subsystem at a subscriber location providing only digital signal processing with respect to the subscriber data signal **(See column 3 line 48 to column 4 line 3 and Figure 1 of Daniel et al. for reference to ITS 13, which is a first signal processing subsystem, providing only digital call processing and speech transcoding/encryption on data before it is sent digitally through serial interface 18)**. Daniel et al. further discloses providing a second signal processing subscriber subsystem at a subscriber location providing analog and digital signal processing with respect to the subscriber data signal **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14, which is a second signal processing subsystem, providing digital processing as well as analog radio signal processing by receiving digital data through serial interface 21, and converting the digital data into an radio frequency signal using CDMA modem 22 and radio transceiver 23)**. Daniel et al. also discloses coupling the first and second subsystems using a digital link **(See column 4 lines 1-16 and Figure 1 of Daniel et al. for reference to the ITS 13 and STRU 14 being coupled via serial link 15, which is a digital link, between serial interfaces 18 and 21).** Daniel et al. further discloses that the first subsystem comprises an indoor unit subsystem and the second subsystem comprises an outdoor unit subsystem **(See the abstract and column 3 lines 48-52 of Daniel et al. for reference to the ITS 13 being an indoor unit and the**

STRU 14 being an outdoor unit). Daniel et al. does not specifically disclose the first subsystem having a first broadband interface.

With respect to claim 64, Daniel et al. discloses a wireless communication system **(See the abstract of Daniel et al. for reference to a radio telecommunication system)**. Daniel et al. also discloses an indoor subsystem comprising an interface compatible with a protocol and a first digital interface compatible with a digital protocol **(See the abstract, column 3 line 48 to column 4 line 3, and Figure 1 of Daniel et al. for reference to ITS 13, which is an indoor subsystem, having a subscriber interface 16, which is an interface compatible with a protocol, and a serial interface 18, which is a first digital interface compatible with a digital protocol)**. Daniel et al. further discloses performing only processing of digital signals by the indoor subsystem **(See column 3 line 48 to column 4 line 3 and Figure 1 of Daniel et al. for reference to ITS 13 providing only digital call processing and speech transcoding/encryption on data before it is sent digitally through serial interface 18 or through subscriber interface 16)**. Daniel et al. also discloses a first outdoor subsystem comprising a wireless interface and a second digital interface compatible with a digital protocol **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14, which is an outdoor subsystem, having a radio transceiver 23, which is a wireless interface, and serial interface 21, which is a second digital interface compatible with a digital protocol)**. Daniel et al. further discloses all processing of analog signals being performed by the first outdoor subsystem **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to**

STRU 14 providing all analog radio signal processing by receiving digital data through serial interface 21, and converting the digital data into an radio frequency signal using CDMA modem 22 and radio transceiver 23). Daniel et al. also discloses the second digital interface communicating with the first digital interface via a digital link to provide digital communication of subscriber data between the indoor system and the first outdoor system **(See column 4 lines 1-16 and Figure 1 of Daniel et al. for reference to the ITS 13 and STRU 14 being coupled via serial link 15, which is a digital link, between serial interfaces 18 and 21 providing digital communication of subscriber data between ITS 13 and STRU 14)**. Daniel et al. does not specifically disclose the indoor subsystem comprising a broadband interface compatible with a broadband protocol.

With respect to claim 70, Daniel et al. discloses a communication method **(See the abstract of Daniel et al. for reference to a radio telecommunication system operating a communication method)**. Daniel et al. also discloses providing an indoor subsystem comprising an interface compatible with a protocol and a first digital interface compatible with a digital protocol **(See the abstract, column 3 line 48 to column 4 line 3, and Figure 1 of Daniel et al. for reference to ITS 13, which is an indoor subsystem, having a subscriber interface 16, which is an interface compatible with a protocol, and a serial interface 18, which is a first digital interface compatible with a digital protocol)**. Daniel et al. further discloses performing only processing of digital signals by the indoor subsystem **(See column 3 line 48 to column 4 line 3 and Figure 1 of Daniel et al. for reference to ITS 13 providing only digital**

call processing and speech transcoding/encryption on data before it is sent digitally through serial interface 18 or through subscriber interface 16). Daniel et al. also discloses providing a first outdoor subsystem comprising a wireless interface and a second digital interface compatible with a digital protocol **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14, which is an outdoor subsystem, having a radio transceiver 23, which is a wireless interface, and serial interface 21, which is a second digital interface compatible with a digital protocol)**. Daniel et al. further discloses all processing of analog signals being performed by the first outdoor subsystem **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14 providing all analog radio signal processing by receiving digital data through serial interface 21, and converting the digital data into an radio frequency signal using CDMA modem 22 and radio transceiver 23)**. Daniel et al. also discloses the second digital interface communicating with the first digital interface via a digital link to provide digital communication of subscriber data between the indoor system and the first outdoor system **(See column 4 lines 1-16 and Figure 1 of Daniel et al. for reference to the ITS 13 and STRU 14 being coupled via serial link 15, which is a digital link, between serial interfaces 18 and 21 providing digital communication of subscriber data between ITS 13 and STRU 14)**. Daniel et al. does not specifically disclose the indoor subsystem comprising a broadband interface compatible with a broadband protocol.

With respect to claims 1, 32, 33, 64, and 70, Kakuma et al., in the field of communications, discloses providing a subscriber interface providing a broadband

interface compatible with a broadband protocol **(See column 1 lines 46-63, column 4 line 65 to column 5 line 14, and Figure 2 of Kakuma et al. for reference to providing a broadband ISDN interface compatible with broadband ISDN, which is a broadband protocol)**. Using a subscriber interface providing a broadband interface compatible with a broadband protocol has the advantage of providing more bandwidth capacity than a non-broadband interface using a non-broadband protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Kakuma et al., to replace the ISDN subscriber interface of Daniel et al. with a broadband ISDN interface, as disclosed by Kakuma et al., with the motivation being to provide more bandwidth capacity to the system.

With respect to claims 2 and 38, Daniel et al. discloses using ISDN **(See column 3 lines 53-62 and Figure 1 of Daniel et al. for reference to the subscriber interface 16 including an interface for ISDN)**.

With respect to claim 6, Daniel et al. discloses that the first subscriber subsystem provides only digital processing of the subscriber data **(See column 3 line 48 to column 4 line 3 and Figure 1 of Daniel et al. for reference to ITS 13 providing only digital call processing and speech transcoding/encryption on data before it is sent digitally through serial interface 18)**.

With respect to claim 10, Daniel et al. discloses that the second subscriber subsystem provides all analog processing of the subscriber data provided by the system **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14**

providing all analog radio signal processing by receiving digital data through serial interface 21, and converting the digital data into an radio frequency signal using CDMA modem 22 and radio transceiver 23).

With respect to claim 36, Daniel et al. discloses coupling the first subsystem to a subscriber data backbone **(See column 3 lines 53-62 and Figure 1 of Daniel et al. for reference to coupling the ITS 13 to an ISDN service of a subscriber, which is a subscriber backbone link)**.

With respect to claim 42, Daniel et al. discloses coupling the second subsystem to a wireless subscriber data communication channel **(See column 4 lines 9-16 and Figure 1 of Daniel for reference to coupling the STRU 14 to a CDMA radio communication channel using CDMA modem 22 and radio transceiver 23)**.

With respect to claim 11, although the combination of Daniel et al. and Kakuma et al. does not specifically disclose the second subsystem comprising a frequency converter for conversion between an intermediate frequency and a radio frequency, up-converting from a base-band frequency, as data is received on serial interface 21 through link 15 (See the abstract of Daniel et al.), to an intermediate frequency, and then from an intermediate frequency to a radio frequency is old and well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Using a frequency converter for conversion between an intermediate frequency and a radio frequency has the advantage of providing a more interference tolerant means to convert between a base band signal and a radio frequency signal.

With respect to claim 12, although the combination of Daniel et al. and Kakuma et al. does not specifically disclose the second subsystem comprising at least one amplifier, using a power amplifier in a radio transceiver is old an well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Using an amplifier has the advantage of increasing the signal strength of a radio signal such that it may be received at a greater distance with increased accuracy.

With respect to claim 13, although Daniel et al. does disclose CTRU 3, which is similar to STRU 14, having a digital multiplexer (**See column 3 lines 36-52 and Figure 1 of Daniel et al. for reference to CTRU 3 having a multiple access CDMA modem, which is a type of digital multiplexer)**, the combination of Daniel et al. and Kakuma et al. does not specifically discloses the second subsystem comprising a digital multiplexer. It would have been obvious for one of ordinary skill in the art at the time of the invention to use a digital multiplexer such that multiple input data streams can be transmitted simultaneously using a CDMA modem.

With respect to claims 28-31, although the combination of Daniel et al. and Kakuma et al. does not specifically disclose using multi-port data routing and multi-port data switching, these functionalities are old and well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Using multi-port data routing and multi-port data switching has the advantage of allowing multiple data links to be connected from one device to many other devices using the same network interface.

With respect to claim 32, although the combination of Daniel et al. and Kakuma et al. does not specifically disclose providing broadband interfaces, providing broadband interfaces for a wireless network as well as a wired backhaul network is old an well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Providing broadband interfaces for a wireless network as well as a wired backhaul network has the advantage of providing high-speed data services to users of the system.

With respect to claim 37, although Daniel et al. does disclose coupling the ITS 13 to an ISDN service, the combination of Daniel et al. and Kakuma et al. does not specifically disclose that the backbone comprises the Internet. Coupling a subscriber unit to the Internet is old and well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Coupling a subscriber unit to the Internet has the advantage of allowing a subscriber to exchange data over the Internet, which is a widely used digital transmission network.

4. Claims 3 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Eyuboglu et al. (U.S. Publication US 2002/0196749 A1).

With respect to claims 3 and 39, the combination of Daniel et al. and Kakuma et al. does not disclose using Ethernet protocol.

With respect to claims 3 and 39, Eyuboglu et al., in the field of communications, discloses using Ethernet protocol **(See page 1 paragraph 5 of**

Eyuboglu et al. for reference to using Ethernet protocol in a backhaul connection to another network). Using Ethernet protocol has the advantage of allowing the users of the wireless network to communicate with users of an Ethernet network.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Eyuboglu et al., to combine using Ethernet, as suggested by Eyuboglu et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to allow the users of the wireless network to communicate with users of an Ethernet network.

5. Claims 4 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Marin et al. (U.S. Publication US 2002/0174441 A1).

With respect to claims 4 and 40, the combination of Daniel et al. and Kakuma et al. does not disclose using SONET protocol, which is a synchronous signal protocol.

With respect to claims 4 and 40, Marin et al. discloses using SONET protocol **(See page 2 paragraph 25 and Figure 2 of Marin et al. for reference to using SONET protocol in a backhaul connection)**. Using SONET protocol has the advantage of allowing the users of the wireless network to communicate with users of a SONET network.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Marin et al., to combine using SONET protocol, as suggested by Marin et al., with the system and method of Daniel et al. and

Kakuma et al., with the motivation being to allow the users of the wireless network to communicate with users of a SONET network.

6. Claims 7, 8, 62, 63, 67, and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Dapper et al. (U.S. Pat. 6275990 B1).

With respect to claims 7, 8, 62, 63, 67, and 73, the combination of Daniel et al. and Kakuma et al. does not disclose using an OFDM digital modem and a digital multiplexer to process signals.

With respect to claims 7, 8, 62, 63, 67, and 73, Dapper et al., in the field of communications, discloses using an OFDM digital modem and a digital multiplexer to process signals **(See column 78 line 51 to column 80 line 10 and Figure 37 of Dapper et al. for reference to using a digital OFDM modem and a digital multiplexer to process signals)**. Using an OFDM digital modem and a digital multiplexer to process signals has the advantage of allowing a system to process and route OFDM signals on multiple channels such that bandwidth is used more efficiently.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Dapper et al., to combine using an OFDM digital modem and a digital multiplexer to process signals, as suggested by Dapper et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to allow a system to process and route OFDM signals on multiple channels such that bandwidth is used more efficiently.

7. Claims 9, 14, 34, 45, 65, 68, 71, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Zendle (U.S. Pat. 6865170 B1).

With respect to claims 9 and 14, the combination of Daniel et al. and Kakuma et al. does not specifically disclose the first and second digital interfaces being fiber optic interfaces.

With respect to claims 34, 45, 65, and 71, the combination of Daniel et al. and Kakuma et al. does not specifically disclose the digital links between subsystems comprising fiber optic links.

With respect to claims 9, 14, 34, 45, 65, and 71, Zendle, in the field of communications, discloses using fiber optic interfaces and fiber optic links to couple subscriber subsystems **(See column 10 lines 10-41 and Figure 8 of Zendle for reference to using fiber optic cables and fiber optic interfaces to couple an indoor subscriber subsystem unit to an outdoor subscriber subsystem unit)**. Using fiber optic interfaces and fiber optic links to couple subscriber subsystems has the advantage of reducing signal loss between subscriber subsystems such that they may be more flexible positioned **(See column 10 lines 28-41 of Zendle for reference to this advantage)**.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Zendle, to combine using fiber optic interfaces and fiber optic links to couple subscriber subsystems, as suggested by

Zendle, with the system and method of Daniel et al. and Kakuma et al., with the motivation being to reduce signal loss between subscriber subsystems such that they may be more flexible positioned.

With respect to claims 68 and 74, Daniel et al. discloses the first and second digital interfaces providing arbitration between cabling and internal circuitry of the indoor and outdoor subsystems respectively **(See column 4 lines 1-16 and Figure 1 of Daniel et al. for reference to the serial interfaces 18 and 21 providing arbitration between the serial link 15 and internal circuitry of ITS 13 and STRU 14)**.

8. Claims 15-20, 47, 66, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Cam et al. (U.S. Publication US 2002/0126704 A1).

With respect to claims 15, 16, and 47, the combination of Daniel et al. and Kakuma et al. does not specifically disclose that the communication of subscriber data via the first and second digital interfaces is synchronous with synchronous overhead added to subscriber data.

With respect to claims 17-20, 66, and 72, the combination of Daniel et al. and Kakuma et al. does not disclose using SONET, which is a synchronous communication protocol, with training and timing overhead bits added.

With respect to claims 15-20, 47, 66, and 72, Cam et al., in the field of communications, discloses using SONET, which is a synchronous communication protocol, with training and timing overhead bits added **(See page 1 paragraph 10 and**

page 2 paragraph 16 of Cam et al. for reference to using SONET protocol with training and timing overhead bit patterns). Using SONET protocol with training and timing overhead bit patterns has the advantage of using a well-known protocol to communicate quickly and efficiently communicate information in a fiber optic link.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Cam et al., to combine using SONET protocol with training and timing overhead bit patterns, as suggested by Cam et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to use a well-known protocol to communicate quickly and efficiently communicate information in a fiber optic link.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and Cam et al. and in further view of Barsheshet (U.S. Publication US 2003/0043738 A1).

With respect to claim 21, the combination of Daniel et al., Kakuma et al., and Cam et al. does not disclose using resilient packet ring access protocol.

With respect to claim 21, Barsheshet, in the field of communications, discloses using resilient packet ring access protocol **(See page 1 paragraph 4 for reference to using resilient packet ring access protocol)**. Using resilient packet ring access protocol has the advantage of using a high-speed efficient packet communication protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Barsheshet, to combine using resilient packet ring access protocol, as suggested by Barsheshet, with the system and method of Daniel et al., Kakuma et al., and Cam et al., with the motivation being to use a high-speed efficient packet communication protocol.

10. Claims 22, 43, 44, 69, and 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Woodhead et al. (U.S. Pat. 6704579 B2).

With respect to claims 22, 43, and 44, the combination of Daniel et al. and Kakuma et al. does not disclose a third subsystem with a third subscriber data interface compatible with the wireless protocol and a third digital interface coupled to the first digital interface to provide communication between the first and third subscriber interfaces

With respect to claims 22, 43, and 44, Woodhead et al., in the field of communications, discloses a wireless communication system including a third subsystem with a third subscriber data interface compatible with a wireless protocol and a third digital interface coupled to a first digital interface to provide communication between the first and third subscriber interfaces **(See column 7 line 55 to column 8 line 23 and Figure 2 of Woodhead et al. for reference to there being a second outdoor unit 108b having the same structure as a first outdoor unit 108a meaning there is a subscriber data interface compatible with a wireless protocol and a**

third digital interface coupled to a digital interface of an indoor unit 122a). Woodhead et al. also discloses multiple subsystems connected directly to a multi-port device a first subsystem using a link **(See column 7 line 55 to column 8 line 23 and Figure 2 of Woodhead et al. for reference multiple outdoor units 108 connected to indoor unit 122 through multiple ports)**. Using a third subsystem has the advantage of allowing multiple antenna units to be connected to a single device to provide better radio coverage for a subscriber.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Woodhead et al., to combine using a third subsystem, as suggested by Woodhead et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to allow multiple antenna units to be connected to a single device to provide better radio coverage for a subscriber.

With respect to claims 69 and 75, the combination of Daniel et al. and Kakuma et al. does not specifically disclose a second outdoor subsystem connected the outdoor subsystem via a digital link with the first digital interface comprising multi-port components for communication between the indoor unit and both of the first and second outdoor subsystems

With respect to claims 69 and 75, Woodhead et al., in the field of communications, discloses a wireless communication system including a second outdoor subsystem with a third interface coupled to a first digital interface **(See column 7 line 55 to column 8 line 23 and Figure 2 of Woodhead et al. for reference to there being a second outdoor unit 108b having the same structure as a first outdoor**

unit 108a meaning there is a subscriber data interface compatible with a wireless protocol and a third digital interface coupled to a digital interface of an indoor unit 122a). Woodhead et al. also discloses multiple subsystems connected directly to a multi-port device a first subsystem using a link **(See column 7 line 55 to column 8 line 23 and Figure 2 of Woodhead et al. for reference multiple outdoor units 108 connected to indoor unit 122 through multiple ports)**. Using a third subsystem has the advantage of allowing multiple antenna units to be connected to a single device to provide better radio coverage for a subscriber.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Woodhead et al., to combine using a third subsystem, as suggested by Woodhead et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to allow multiple antenna units to be connected to a single device to provide better radio coverage for a subscriber.

11. Claims 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and Woodhead et al., as applied to claims 22, 43, and 44 above, and in further view of Schilling (U.S. Publication US 2003/0161386 A1).

With respect to claim 23, the combination of Daniel et al., Kakuma et al., and Woodhead et al. does not disclose that the third subsystem is connected to the first subsystem through the same link that connects the first subsystem and the second subsystem.

With respect to claim 23, Schilling discloses subsystems linked together in a daisy chain **(See page 3 paragraphs 36-40 and Figure 2 of Schilling for reference to base stations and a controller linked together in a daisy-chain)**. Using subsystems linked together in a daisy chain has the advantage of allowing the amount of fiber used to connected the system to be reduced since all subsystems do not need to connect to a central subsystem directly.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Schilling, to combine using subsystems linked together in a daisy chain, as suggested by Schilling, with the system and method of Daniel et al., Kakuma et al., and Woodhead et al., with the motivation being to allow the amount of fiber used to connected the system to be reduced since all subsystems do not need to connect to a central subsystem directly.

With respect to claims 24 and 25, Woodhead et al. discloses multiple subsystems connected directly to a multi-port device the first subsystem **(See column 7 line 55 to column 8 line 23 and Figure 2 of Woodhead et al. for reference multiple outdoor units 108 connected to indoor unit 122 through multiple ports)**.

With respect to claims 26 and 27, although the combination of Daniel et al., Kakuma et al., Woodhead et al., and Schilling does not specifically disclose using multi-port data routers and multi-port data switches, these devices are old and well known in the art of communications. Using multi-port data router and multi-port data switches has the advantage of allowing multiple data links to be connected from one device to many other devices using the same network interface.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine using multi-port data router and multi-port data switches with the system and method of Daniel et al., Kakuma et al., Woodhead et al., and Schilling, with the motivation being to allow multiple data links to be connected from one device to many other devices using the same network interface.

12. Claims 41 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Barsheshet.

With respect to claims 41 and 46, the combination of Daniel et al. and Kakuma et al. does not disclose using resilient packet ring access protocol.

With respect to claims 41 and 46, Barsheshet, in the field of communications, discloses using resilient packet ring access protocol **(See page 1 paragraph 4 for reference to using resilient packet ring access protocol)**. Using resilient packet ring access protocol has the advantage of using a high-speed efficient packet communication protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Barsheshet, to combine using resilient packet ring access protocol, as suggested by Barsheshet, with the system and method of Daniel et al. and Kakuma et al., with the motivation being to use a high-speed efficient packet communication protocol.

Response to Arguments

13. Applicant's arguments filed 11/24/08 have been fully considered but they are not persuasive.

Regarding Applicant's argument directed towards amended claim 1 and 33, these arguments are not moot due to new grounds of rejection using newly cited reference Kakuma et al. (U.S. Pat. 5504742).

Regarding Applicant's argument that Daniel et al. does not disclose a second subscriber subsystem providing "all analog processing of subscriber data by the system", as recited in claim 10, the Examiner respectfully disagrees. Applicant's arguments point out that the STRU 14 of Daniel et al. provides both digital and analog processing of subscriber data; however, the fact that digital processing is also performed by STRU 14 does not preclude STRU 14 from also performing "all analog processing" as claimed. The claim does not limit the second subscriber subsystem to perform only analog processing, but rather limits the second subscriber subsystem to perform "all analog processing". Thus, since the STRU 14 of Daniel et al. does perform all analog processing, as claimed, Daniel et al. does disclose the limitations of claim 10.

Regarding Applicant's argument that the combination of Daniel et al. and Eyuboglu et al. does not disclose using Ethernet to couple the first subsystem to a data communication backbone, as recited in claims 3 and 39, the Examiner respectfully disagrees. Applicant argues that the network backbone disclosed by Eyuboglu et al. is different from the claimed subscriber backhaul. While this may be true, both a network

backhaul and subscriber backhaul are similar links performing similar functions. Thus, it would have been obvious to apply the technique of using Ethernet with a network backhaul, as taught by Eyuboglu et al., to the subscriber backhaul of Daniel et al. since the similar backhauls operate in a similar manner.

Regarding Applicant's argument that the combination of Daniel et al. and Marin et al. does not disclose using SONET to couple the first subsystem to a data communication backbone, as in claims 4 and 40, the Examiner respectfully disagrees. Applicant argues that the network backbone disclosed by Marin et al. is different from the claimed subscriber backhaul. While this may be true, both a network backhaul and subscriber backhaul are similar links performing similar functions. Thus, it would have been obvious to apply the technique of using SONET with a network backhaul, as taught by Eyuboglu et al., to the subscriber backhaul of Daniel et al. since the similar backhauls operate in a similar manner.

Regarding Applicant's argument that there is no motivation to combine the teachings of Dapper et al. with the teachings of Daniel et al., the Examiner respectfully disagrees. Daniel et al. discloses a wireless subsystem using a CDMA wireless protocol. Dapper et al. discloses a wireless subsystem using an OFDMA wireless protocol. Replacing the use of one type of wireless protocol with another type of wireless protocol is an obvious substitution of similar devices to produce a similar result. Since the use of OFDMA provides advantages over the use of CDMA in certain operating environments, it would have been obvious to replace the CDMA components of the system of Daniel et al. with OFDMA components, as disclosed by Dapper et al. in

order to gain the advantages of using OFDMA. Thus, there is proper motivation to combine the teachings of Daniel et al. and Dapper et al.

Regarding Applicant's argument that there is no motivation to combine the teachings of Zendle with the teachings of Daniel et al., the Examiner respectfully disagrees. Daniel et al. discloses a digital link between subscriber subsystems, but does not indicate any specific type of link being used. Zendle discloses using a fiber optic link between subscriber subsystems. Since Daniel et al. fails to disclose any specific type of link to use, one of ordinary skill in the art would have been motivated to look elsewhere to determine what specific type of link to use. Thus it would have been obvious for one of ordinary skill in the art to combine the use of a fiber optic link, as taught by Zendle, with the system of Daniel et al. Therefore, there is proper motivation to combine the teachings of Zendle with the teachings of Daniel et al.

Regarding Applicant's argument that there is no teaching in the reference of using a fiber optic link for another digital link, as recited in claim 45, the Examiner respectfully disagrees. As shown above, Zendle teaches using a fiber optic link to link an outdoor subsystem to an indoor subsystem. Thus, it would have been an obvious extension of the teachings of Zendle to further use the same type of link (i.e. another fiber optic link) to link a second outdoor unit to an indoor unit.

Regarding Applicant's argument that there is no objective reason provided in the rejections above to combine the well known elements described in the rejection with the system of Daniel et al. (see the rejections of claims 11-13, 26-31, and 37), the Examiner respectfully disagrees. As shown in the rejections above, frequency up-conversion has

the well known advantage of reducing interference, using a power amplifier has the well known advantage of increasing signal strength, using a digital multiplexer has the well known advantage of allowing multiple data streams to be transmitted together, using multi-port devices has the well known advantage of allowing more data links to be connected between devices, and using an Internet backbone has the well known advantage of coupling devices to a widely used digital transmission network. Each of these advantages is significant and would be gained by the system and method of Daniel et al. when employing these well known techniques and devices within the system. Thus there is proper reason for these well known techniques and devices to be used within the system and method of Daniel et al. and, thus, the limitations of claims 11-13, 28-31, and 37 are obvious, as shown in the rejections above.

Regarding Applicant's argument that Cam et al. does not disclose synchronous overhead comprising timing bits, as recited in claim 18, the Examiner respectfully disagrees. As shown in the rejections above, Cam et al. discloses using SONET protocol with training overhead bit patterns (See page 2 paragraph 16 of Cam et al.). It is well known that training overhead bit patterns are sued to synchronize timing between SONET devices. Thus, the training overhead bit patterns of Cam et al. are timing bits, as claimed.

Regarding Applicant's argument that Cam et al. does not disclose "communicating a synchronous signal via said digital link to enable media access control to be provided by said first signal processing subscriber subsystem with respect to a physical link utilized by said second signal processing subscriber subsystem", as

recited in claim 47, the Examiner respectfully disagrees. As shown in the rejections above, Cam et al. discloses using SONET to communicate a synchronous signal via a digital link (See page 1 paragraph 10 and page 2 paragraph 16 of Cam et al.). The limitation stating “to enable media access control to be provided by said first signal processing subscriber subsystem with respect to a physical link utilized by said second signal processing subscriber subsystem” is not a positively stated limitation and is merely an intended result of the "communication communicating a synchronous signal via said digital link”. Thus, the combined teaches of Daniel et al. and Cam et al. do not need to actually provide media access control, but merely need to "enable" media access control to be provided. Since the SONET communication disclose by Cam et al. could be used to provide media access control, Cam et al. does disclose enabling this function, as claimed.

Regarding Applicant’s argument that the base station disclosed by Woodhead et al. is different from the subscriber subsystems recited in the claims, and thus the combination of the teachings of Woodhead et al. with the system and method of Daniel et al. does not render the limitations of claims 22, 43, and 44 obvious, the Examiner respectfully disagrees. Daniel et al. discloses a base station and subscriber station having similar construction and corresponding similar components (See the abstract of Daniel et al.). Since the construction and devices of the subscriber station are similar to that of a base station, one of ordinary skill in the art would be motivated to look at teachings for improving both subscriber stations and base stations when looking to improve upon the subscriber station of Daniel et al. Thus, one of ordinary skill in the art

would have been motivated to combine the teachings Woodhead et al. with the system and method of Daniel et al. since both systems comprise similar wireless devices operating in a similar manner.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON E. MATTIS whose telephone number is (571)272-3154. The examiner can normally be reached on M-F 8AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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